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	Application No.	Applicant(s)
Notice of Allowability	10/650,079	KLEIN, UDO
	Examiner	Art Unit
	Rezwanul Mahmood	2164
The MAILING DATE of this communication apperall claims being allowable, PROSECUTION ON THE MERITS IS herewith (or previously mailed), a Notice of Allowance (PTOL-85) NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RI	(OR REMAINS) CLOSED in this app or other appropriate communication GHTS. This application is subject to	plication. If not included not will be mailed in due course. THIS
1. $igtimes$ This communication is responsive to <u>the amendment filed</u> of	on 06/01/2007.	:
2. 🔀 The allowed claim(s) is/are <u>1-10,12 and 14-22</u> .		
 Acknowledgment is made of a claim for foreign priority una)	been received. been received in Application No	
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Applicant has THREE MONTHS FROM THE "MAILING DATE" noted below. Failure to timely comply will result in ABANDONM THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.		complying with the requirements
 A SUBSTITUTE OATH OR DECLARATION must be subm INFORMAL PATENT APPLICATION (PTO-152) which give 		
5. CORRECTED DRAWINGS (as "replacement sheets") mus	st be submitted.	
(a) \square including changes required by the Notice of Draftspers	on's Patent Drawing Review (PTO-	·948) attached
1) 🗌 hereto or 2) 🔲 to Paper No./Mail Date		•
(b) including changes required by the attached Examiner's Paper No./Mail Date	s Amendment / Comment or in the C	Office action of .
Identifying indicia such as the application number (see 37 CFR 1 each sheet. Replacement sheet(s) should be labeled as such in t		
 DEPOSIT OF and/or INFORMATION about the depo attached Examiner's comment regarding REQUIREMENT 	sit of BIOLOGICAL MATERIAL r FOR THE DEPOSIT OF BIOLOGIC	nust be submitted. Note the AL MATERIAL.
Attachment(s)		
1. Notice of References Cited (PTO-892)	5. Notice of Informal P	
2. Notice of Draftperson's Patent Drawing Review (PTO-948)	 6. ☑ Interview Summary Paper No./Mail Da 	te <u>08/28/07</u> .
 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 06/01/2007 4. Examiner's Comment Regarding Requirement for Deposit of Biological Material 	7. 🛛 Examiner's Amendr	ment/Comment
	8. 🛛 Examiner's Stateme	ent of Reasons for Allowance
	9.	· C. Rones

CHARLES RONES
SUPERVISORY PATENT EXAMINER

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Stephen R. Schaefer on 08/28/2007.

The application has been amended as follows:

Please delete claims 11 and 13.

Please replace claims 1-10, 12 and 14-22 with amended cleaned version of claims 1-10, 12 and 14-22 as follows:

1) A computer-implemented method comprising:

translating grouping values into nodes of a directed graph, wherein the grouping values are associated with periods of timelines, the timelines comprising data records, and wherein a grouping value associated with a period of a first one of the timelines being the same as a grouping value associated with a concurrently occurring period of a second one of the timelines indicates that specified data of a data record for the period of the first one of the timelines is to be synchronized with the specified data of a data record for the period of the second one of the timelines;

distributing data through the nodes to obtain a modified subset of the data records:

re-distributing the data recursively along the nodes to obtain a modified directed

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graph;

translating the modified directed graph into a modified plurality of timelines that include the modified subset of data records; and

storing the modified plurality of timelines in a storage medium.

- 2) The method of claim 1, wherein the data records are subject to a time constraint such that temporal gaps between the data records are not allowed, and further wherein the modified subset of data records are in compliance with the time constraint.
- 3) The method of claim 1 comprising extending a data record preceding a temporary gap between data records caused by a modification of the data records through the temporary gap to a next-occurring data record.
- 4) The method of claim 1 wherein translating sequences of grouping values comprises:

assigning identical grouping values to a single node; and inserting edges of the directed graph between pairs of nodes that correspond to consecutively-occurring ones of the periods.

5) The method of claim 4 comprising representing a node of the directed graph based on a grouping value and beginning point of an associated one of the periods.

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The method of claim 1 wherein distributing data through the nodes comprises:

assigning each grouping value and its associated period an assigned color; and
coloring each node its assigned color to represent data, so that nodes having
identical color share identical data.

- 7) The method of claim 1 wherein re-distributing the data comprises:

 associating data records of a first timeline and a second timeline from the plurality of timelines with a first grouping value; and synchronizing the data records.
- 8) The method of claim 1 wherein distributing data comprises removing a node from the directed graph that corresponds to a timeline period that is associated with a data record having data at its beginning.
- 9) The method of claim 1 wherein distributing data comprises:

traversing the directed graph and designating consecutive nodes identically so as to represent identical data stored in association with the grouping values represented by the consecutive nodes; and

stopping the traversing upon reaching a differently-designated node.

10) An apparatus comprising a storage medium having machine-executable instructions stored thereon, the instructions including:

a first code segment, stored on the storage medium, for selecting a first grouping value sequence associated with a first timeline, the first timeline including first data records;

a second code segment, stored on the storage medium, for selecting a second grouping value sequence associated with a second timeline, the second timeline including second data records, wherein the first data records and second data records are subject to a time constraint such that no gap is allowed between any two of the first data records and between any two of the second data records, and further wherein a grouping value associated with a period of the first timeline being the same as a grouping value associated with a concurrently occurring period of the second timeline indicates that specified data of a data record for the period of the first timeline is to be synchronized with the specified data of a data record for the period of the second timeline:

a third code segment, stored on the storage medium, for mapping the first grouping value sequence and the second grouping value sequence into nodes of a directed graph;

a fourth code segment, stored on the storage medium, for representing data associated with a first grouping value in the directed graph by providing a first designation to a first node associated with the first grouping value; and

a fifth code segment, stored on the storage medium, for recursively distributing data through the directed graph in response to a modification of one of the first data records, beginning with a high date of the first timeline and the second timeline, to

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ensure that all of the first and second data records are in accordance with the time constraint.

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- 12) The apparatus of claim 10 comprising a fifth code segment for extending a data record that precedes a gap in its associated timeline, in violation of the time constraint, until the data record meets a succeeding data record.
- 14) The apparatus of claim 10 comprising a sixth code segment for mapping the directed graph into a modified first timeline and a modified second timeline.
- 15) The apparatus of claim 10 wherein each grouping value is associated with a time period, and wherein identical data appears in the first timeline and the second timeline whenever a grouping value and period overlap.
- 16) The apparatus of claim 10 comprising:

a sixth code segment, stored on the storage medium, for assigning identical grouping values to a single node of the directed graph; and

a seventh code segment, stored on the storage medium, for inserting edges of the directed graph between pairs of nodes that correspond to consecutively-occurring ones of grouping values from the first grouping value sequence and the second grouping value sequence.

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17) The apparatus of claim 10 comprising a sixth code segment, stored on the storage medium, for removing a node from the directed graph that corresponds to a timeline period that is associated with a data record having data at its beginning.

18) The apparatus of claim 10 comprising:

a sixth code segment, stored on the storage medium, for traversing the directed graph and designating consecutive nodes identically so as to represent identical data stored in association with the grouping values represented by the consecutive nodes; and

a seventh code segment, stored on the storage medium, for stopping the traversing upon reaching a differently-designated node.

19) A system comprising:

means for associating, in an electronic database, nodes of a directed graph with grouping periods and grouping values associated with timelines, wherein a grouping value associated with a period of a first one of the timelines being the same as a grouping value associated with a concurrently occurring period of a second one of the timelines indicates that specified data of a data record for the period of the first one of the timelines is to be synchronized with the specified data of a data record for the period of the second one of the timelines;

means for associating, in an electronic database, an edge of the directed graph between succeeding grouping periods;

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means for distributing data through the nodes to obtain a modified subset of the data records, re-distributing the data recursively along the nodes to obtain a modified directed graph, and translating the modified directed graph into a modified plurality of timelines that include the modified subset of data records; and

means for storing the modified plurality of timelines in a storage medium.

- 20) The system of claim 19 wherein the timelines each comprises data records that are subject to a time constraint such that no temporal gap is allowed to exist between any two of the data records included in the respective timeline.
- 21) The system of claim 19 comprising means for designating nodes of the directed graph as corresponding to grouping periods containing data.
- 22) The system of claim 19 wherein a grouping period and a grouping value are associated with identical data of the timelines.

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REASONS FOR ALLOWANCE

1. Claims 1-10, 12 and 14-22 are pending in this office action.

- 2. Claims 11 and 13 have been cancelled.
- 3. The closes prior arts are Kaiser (US Publication 2005/0010606), Gupta (US Patent 6,415,326), Lystad (US Publication 2005/0182783) and Gusack (US Patent 6,112,209)
- 4. Claims 1, 10 and 19 are the pending independent claims.
- 5. The following is an examiner's statement of reasons for allowance:

Regarding the independent claims 1, 10 and 19, applicant's claimed invention of "translating grouping values into nodes of a directed graph...specified data of a data record for the period of the first one of the timelines is to be synchronized with the specified data of a data record for the period of the second one of the timelines... distributing data through the nodes to obtain a modified subset of data records" combined with "recursively re-distributing the data along the nodes to obtain a modified directed graph" would not have been obvious over, nor would have been fairly suggested by the prior art of record.

Because of the missing features in the references mentioned above, independent claims 1, 10 and 19 are allowable. Since claims 2-9 depend on claim 1, claims 12 and 14-18 depend on claim 10, and claims 20-22 depend on claim 19, they are also allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rezwanul Mahmood whose telephone number is (571)272-5625. The examiner can normally be reached on M - F 10 A.M. - 5 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571)272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rezwanul Mahmood Examiner Art Unit 2164

August 30, 2007

CHARLES RONES SUPERVISORY PATENT EXAMINER